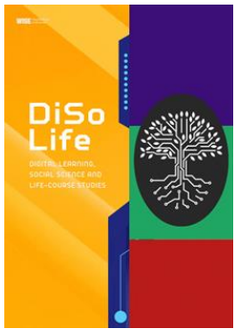

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Enhancing Social Studies Achievement through the Make a Match Cooperative Model: The Moderating Role of Student Motivation

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Research Article

Enhancing Social Studies Achievement through the Make a Match Cooperative Model: The Moderating Role of Student Motivation

Hermia Kurnia Putri*, Eko Risdianto, and Adityas Agung Ramandani

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Abstract

This study investigates the effectiveness of the Make a Match cooperative learning model in enhancing social studies achievement among seventh-grade students, while considering student motivation as a moderating variable. Employing a quasi-experimental design with a pretest-posttest control group, the study involved 84 students from Al-Azhar 3 Junior High School in Bandar Lampung, Indonesia, who were divided into experimental and control groups using cluster random sampling. Data were collected through a validated achievement test and a motivation questionnaire, then analyzed using ANOVA and independent samples t-tests. The findings indicate that the Make a Match model significantly improves student learning outcomes compared to traditional methods, particularly for students with high motivation. Conversely, students with low motivation benefited more from the Jigsaw model, highlighting a critical interaction effect between instructional strategy and learner characteristics. These results underscore the importance of aligning pedagogical approaches with students' motivational profiles to optimize academic achievement. The study contributes to the literature on differentiated instruction and cooperative learning by emphasizing the nuanced interplay between teaching methods and student motivation.

Keywords: Cooperative Learning; Make a Match Model; Student Motivation; Learning Outcomes; Social Studies; Instructional Strategy; Interaction Effect.

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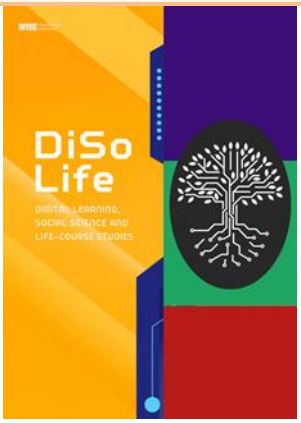

INTRODUCTION

Effective instructional strategies are essential for enhancing student engagement and improving learning outcomes, particularly in social studies education. Despite ongoing educational reforms, teacher-centered instructional methods continue to dominate classroom practices, limiting student participation and adversely affecting motivation and academic achievement [1], [2], [3]. Extensive studies indicate that active and cooperative learning methods significantly outperform conventional lecture-based approaches in promoting cognitive and socio-emotional development [4], [5], [6].

Among cooperative learning strategies, the Make a Match model has gained prominence due to its potential to foster active participation, social interaction, and collaborative problem-solving, aligning with constructivist and socio-cultural learning theories [7], [8], [9]. Previous empirical studies confirm that cooperative learning models, including Make a Match, effectively improve students' understanding, retention, critical thinking, and motivation across diverse disciplines and educational settings [10], [11], [12]. Nevertheless, student motivation remains a critical moderating factor influencing the success of cooperative learning approaches. Motivation significantly impacts students' engagement, persistence, and overall academic performance [13], [14], [15]. For example, highly motivated students typically exhibit superior outcomes in cooperative learning environments, driven by intrinsic motivation that encourages active participation and effective collaboration [16], [17], [18]. Conversely, students with lower motivation levels often face challenges related to self-regulated learning, necessitating appropriate instructional scaffolding [19], [20], [21].

While cooperative learning models have been extensively studied, studies specifically investigating the interaction between the Make a Match model and student motivation, particularly within the Indonesian educational context, remain limited. Given Indonesia's unique educational landscape, examining how cooperative learning models interact with student motivation is critical for providing valuable insights for educators and policymakers seeking to optimize instructional practices. To address this gap, the present study investigates the effectiveness of the Make a Match cooperative learning model in enhancing social studies achievement among seventh-grade students at Al-Azhar 3 Junior High School in Bandar Lampung, Indonesia, while considering student motivation as a moderating variable. Specifically, this study aims to answer the following study questions: (1) Does the Make a Match learning model significantly enhance students' social studies achievement compared to traditional methods? (2) Do highly motivated students achieve better learning outcomes using the Make a Match model? (3) How do students with low motivation perform using the Make a Match model compared to alternative cooperative learning strategies? and (4) Is there an interaction effect between the cooperative learning model and student motivation on social studies learning outcomes?

This study contributes to the existing literature by providing empirical evidence regarding the interplay between instructional methods and motivation within cooperative learning frameworks, offering practical insights for educators aiming to improve student outcomes through targeted instructional strategies.

METHODS

Research Design

This study adopted a quasi-experimental design with a pretest-posttest control group approach to investigate the effectiveness of the Make a Match cooperative learning model on students' social studies achievement. The quasi-experimental design was chosen to allow for comparison between an experimental group and a control group under conditions where true randomization was not fully feasible [22].

Participants

The participants consisted of seventh-grade students at Al-Azhar 3 Junior High School in Bandar Lampung, Indonesia, during the academic year 2024/2025. Cluster random sampling was utilized to select two intact classes, with one class (n=42) assigned as the experimental group implementing the Make a Match model, and another class (n=42) serving as the control group receiving traditional instructional methods. Participants' demographic characteristics such as age and gender were comparable across both groups, ensuring homogeneity.

Instruments

Data were collected using two primary instruments. First, a social studies achievement test was developed by the researchers, consisting of 25 multiple-choice items aligned with the national curriculum standards. The test underwent expert validation to ensure content validity and was pilot-tested to determine reliability, resulting in a Cronbach's alpha of 0.82, indicating strong internal consistency. Second, students' motivation was assessed using an adapted version of the Motivated Strategies for Learning Questionnaire (MSLQ) developed by de Araujo et al. [23]. This questionnaire measured intrinsic and extrinsic motivational orientations and comprised 20 items on a 5-point Likert scale. Reliability analysis of the adapted questionnaire yielded a Cronbach’s alpha of 0.85, confirming satisfactory reliability for measuring student motivation in the current context.

Procedures

The study spanned over eight weeks. Initially, both groups received a pre-test to measure their baseline knowledge in social studies. Subsequently, the experimental group was taught using the Make a Match cooperative learning model, characterized by structured cooperative activities involving matching cards, peer interactions, and collaborative discussions facilitated by the teacher. In contrast, the control group was instructed using conventional methods, predominantly involving teacher-centered lectures, note-taking, and textbook reading. At the conclusion of the instructional period, both groups underwent post-tests to measure their learning achievement. Concurrently, the motivation questionnaire was administered to categorize students into high and low motivation groups based on median-split criteria.

Data Analysis

Data analysis was conducted using the Statistical Package for Social Sciences (SPSS). Descriptive statistics, including means and standard deviations, were calculated to summarize student achievement and motivation levels. Inferential statistics involved a two-way analysis of variance (ANOVA) to examine the main effects of instructional methods (Make a Match versus traditional)

and student motivation (high versus low), as well as their interaction effects on social studies achievement scores. Additionally, independent samples t-tests were performed to determine significant differences in post-test achievement scores between highly motivated and less motivated students within each instructional condition. All statistical analyses were conducted at a significance level of $p < 0.05$, and prior to analysis, assumptions related to normality and homogeneity of variance were verified to ensure the accuracy and validity of the statistical inferences.

RESULT AND DISCUSSIONS

Effectiveness of the Make a Match Model on Student Achievement

Analyses conducted using Analysis of Variance (ANOVA) revealed significant differences in social studies achievement between students taught using the Make a Match cooperative learning model and those instructed with the Jigsaw method. Table 1 provides the detailed ANOVA results.

Table 1. ANOVA Results of Make a Match vs. Jigsaw Models on Student Learning Outcomes.

Source	df	Mean Square	F-value	Sig.
Between Groups	1	204.57	9.407	0.003
Within Groups	82	21.74	-	-
Total	83	-	-	-

As indicated in Table 1, the F-value of 9.407 exceeded the critical F-value of 4.01, with a significance level of 0.003 ($p < 0.05$). This finding suggests a statistically significant difference in social studies achievement between the two instructional models. Students who participated in learning activities using the Make a Match cooperative model demonstrated superior achievement compared to those who engaged with the Jigsaw learning method.

The observed differences in learning outcomes may result from varying degrees of structured teacher facilitation and peer interaction provided by each cooperative learning approach. The Make a Match model consistently integrates direct teacher support and structured peer collaboration, promoting greater student engagement, motivation, and participation throughout the learning process. Conversely, the Jigsaw model emphasizes higher student autonomy and less continuous teacher intervention, potentially resulting in varied engagement levels among students. These findings align with previous studies underscoring that cooperative learning methodologies differently influence student motivation and participation based on instructional structure and implementation quality [24], [25], [26]. According to Khalili [27] and Lehtinen et al. [28], cooperative learning strategies based on holistic cognitive and humanistic psychological perspectives significantly foster interpersonal relationships and active cognitive engagement.

Moreover, the structured group interactions within the Make a Match model facilitated active discussion, peer questioning, and immediate feedback, enabling effective clarification of misconceptions among students. This collaborative process promotes cognitive elaboration, critical thinking, and meaningful associations that enhance information retention and academic performance compared to individual or less structured learning approaches. Overall, these results highlight the importance of selecting and implementing cooperative learning methods tailored to student characteristics, particularly motivation, and classroom dynamics. While both Make a Match and Jigsaw models offer distinct pedagogical strengths, the present study provides clear evidence supporting the effectiveness of the Make a Match cooperative learning model in enhancing social

studies learning outcomes through structured, teacher-facilitated interactions and sustained peer engagement.

Impact of Make a Match Model on Highly Motivated Learners

The analysis of independent sample t-tests was conducted to examine whether there was a statistically significant difference in social studies learning outcomes among highly motivated students who were taught using the Make a Match model compared to those taught using the Jigsaw model. The results are presented in Table 2.

Table 2. Independent Samples t-Test Results for Highly Motivated Students.

Group	N	Mean Score	Std. Deviation	t-value	Sig. (2-tailed)
Make a Match	21	82.43	6.29	6.580	0.000
Jigsaw	21	73.10	5.87		

As shown in Table 2, students in the Make a Match group scored significantly higher ($M = 82.43$, $SD = 6.29$) than their counterparts in the Jigsaw group ($M = 73.10$, $SD = 5.87$), with a t-value of 6.580 and a p-value of 0.000 ($p < 0.05$). This confirms that the Make a Match learning model is more effective in enhancing academic performance for students with high motivation. This result aligns with McClelland's theory of achievement motivation, which suggests that individuals with strong motivation to succeed are more likely to set challenging goals and persist through difficulties to meet standards of excellence [29], [30]. The structure of the Make a Match model characterized by immediate feedback, peer reinforcement, and repeated engagement creates a learning environment conducive to high-achieving, motivated students. These learners thrive when given opportunities to demonstrate mastery, collaborate, and compete in cognitively stimulating tasks.

Highly motivated students tend to take greater personal responsibility for their learning, a trait that is optimally supported through cooperative tasks such as those found in the Make a Match model. According to Pan [31], such students prefer learning environments that reward effort and offer autonomy. The Make a Match model promotes this by allowing students to work in pairs, match questions and answers, and engage in reciprocal teaching activities that require active cognitive involvement. In contrast, students with high motivation placed in Jigsaw settings may not fully benefit due to the less structured nature of group role assignments. The uneven distribution of responsibility and dependence on peer performance can lead to reduced individual accountability, which contradicts the preferences of highly motivated learners [32], [33], [34]. As a result, their performance may not reflect their true academic potential in such settings.

This finding is further supported by Pekrun [35], who references Atkinson and Feather's theory that achievement is maximized when the motivation to succeed outweighs the fear of failure. In the Make a Match environment, high-performing students are encouraged to meet performance challenges head-on and to assist peers, reinforcing their understanding through explanation and discussion. In summary, the Make a Match model effectively leverages the strengths of highly motivated students by fostering autonomy, accountability, and active engagement. These characteristics are essential for creating an optimal learning climate where motivated learners can excel. Therefore, instructional models should be selected and adapted based on students' motivational profiles to ensure maximum learning impact.

Performance of Low-Motivation Students in Cooperative Learning

To test the third hypothesis, an independent samples t-test was conducted to examine whether there was a statistically significant difference in the learning outcomes of students with low motivation who were taught using the Make a Match model compared to those taught using the Jigsaw model. The results are presented in Table 3.

Table 3. T-Test Results for Students with Low Motivation: Make a Match vs. Jigsaw Learning. Models

Group	N	Mean Score	SD	t-value	Sig. (2-tailed)
Make a Match Model	21	67.10	5.34	3.768	0.000
Jigsaw Model	21	72.38	4.91		

The statistical analysis yielded a t-value of 3.768, which exceeds the critical t-value of 2.045 at a 0.05 significance level, with a p-value of 0.000. These results indicate a significant difference in learning outcomes between the two groups. Specifically, students with low motivation who participated in the Jigsaw learning model achieved higher post-test scores than those in the Make a Match group.

This finding suggests that the Jigsaw model is more effective in supporting students with lower motivation levels. One plausible explanation is that the Jigsaw strategy emphasizes collaborative responsibility and interdependence within heterogeneous groups. Each student is assigned a unique segment of the learning material and becomes an "expert" responsible for teaching their peers, a mechanism that promotes accountability and boosts participation regardless of initial motivation levels [36]. This environment allows students with weaker motivation to benefit from peer scaffolding and social support, which fosters a greater sense of belonging and purpose. In contrast, the Make a Match model, while designed to promote engagement through pairing activities and active recall, tends to demand a higher degree of self-initiation and confidence. Students with low motivation may become passive participants during the matching process, relying heavily on more competent peers and failing to fully engage in the deeper cognitive processing required. This is consistent with prior findings by Bećirović et al. [37], who emphasizes that cooperative learning models must be carefully matched to students' motivational readiness to maximize effectiveness.

Furthermore, low-motivation students are often less confident in collaborative problem-solving contexts that require spontaneous verbal expression or peer interaction, both of which are emphasized in the Make a Match approach. As a result, such students may experience cognitive overload or disengagement, which adversely impacts their achievement. In line with the socio-constructivist view [38], the Jigsaw model offers stronger social mediation and structured support for learners who lack intrinsic drive, thereby enabling more equitable participation. It also provides opportunities for social comparison and mutual assistance, which have been shown to improve both competence and motivation among struggling learners [39]. In conclusion, while both cooperative learning models are designed to enhance academic outcomes, their effectiveness may vary depending on student characteristics. For students with low learning motivation, the Jigsaw model appears more suitable due to its structured, collaborative format that encourages shared responsibility and nurtures student confidence through peer support.

Interaction Between Instructional Model and Motivation

The fourth hypothesis examined whether there is a statistically significant interaction between the learning model (Make a Match vs. Jigsaw) and student motivation (high vs. low) in influencing social studies learning outcomes among seventh-grade students. The results of the two-way ANOVA analysis are presented in Table 4.

Table 4. Two-Way ANOVA: Interaction Effect Between Learning Model and Student Motivation.

Source of Variation	df	Mean Square	F-value	Sig.
Learning Model	1	204.57	9.407	0.003
Student Motivation	1	168.32	7.130	0.009
Learning Model * Motivation	1	168.62	7.758	0.000
Error	80	21.74		
Total	83			

As presented in Table 4, the interaction term between the learning model and student motivation yielded an F-value of 7.758, which exceeds the critical value of 4.01. The significance level ($p = 0.000$) confirms that the interaction effect is statistically significant. This means that the impact of the learning model on students' academic performance is not uniform but varies depending on the level of student motivation. These findings indicate that neither the Make a Match model nor the Jigsaw model functions optimally in isolation from internal learner characteristics, especially motivation. This is in line with Kamberi [40] view that motivation is an internal drive that directs students to sustain effort and achieve excellence. Motivation acts as a mediator between instruction and performance, influencing how students respond to learning tasks, regardless of instructional design. The results support the argument that effective learning outcomes are the product of multifaceted interactions. As stated by Zhao and Ma [41], student learning is shaped not only by the instructional approach but also by individual-level factors such as self-efficacy, persistence, and goal orientation. Highly motivated students are more likely to actively engage in collaborative discussions, maintain focus, and benefit from peer feedback all of which are core features of the Make a Match model.

Moreover, this interaction effect underscores the limitations of a one-size-fits-all approach in instructional planning. For students with lower motivation, structured scaffolding and emotional support become critical to ensuring engagement. The differentiated impact observed in this study confirms the importance of adapting cooperative learning strategies to learners' psychological readiness and motivation levels [42], [43], [44]. In summary, the presence of a significant interaction effect suggests that educational interventions such as cooperative learning models should not be designed in isolation from learner characteristics. Motivation is a central component that can either amplify or inhibit the effectiveness of any instructional strategy. Therefore, to enhance academic achievement effectively, educators must consider both instructional design and motivational scaffolds tailored to the learners' profiles.

CONCLUSION

This study investigated the effects of the Make a Match cooperative learning model and student motivation on social studies achievement among seventh-grade students at Al-Azhar 3 Junior High School in Bandar Lampung. The findings revealed that the Make a Match learning model

significantly improved student learning outcomes compared to the Jigsaw model, particularly among students with high motivation. Conversely, for students with low motivation, the Jigsaw model proved more effective, suggesting that instructional strategies interact differently with varying motivational profiles. Furthermore, a significant interaction effect was found between the learning model and student motivation, indicating that the effectiveness of cooperative learning is contingent upon learners' motivational levels. These results underscore the importance of aligning instructional methods with students' internal characteristics to optimize academic achievement. This study contributes to the growing body of literature on cooperative learning by highlighting the contextual and psychological conditions under which specific models are most effective. It reinforces the view that no single instructional strategy is universally optimal and that differentiated pedagogical approaches are essential for addressing diverse student needs. Future studies should explore the longitudinal effects of cooperative learning models across subjects and grade levels, and examine additional moderating variables such as self-efficacy, peer relationships, and classroom climate to deepen the understanding of how cooperative strategies can be tailored to maximize student learning outcomes.

LIMITATIONS

Despite the valuable insights yielded from this quasi-experimental study, several limitations should be acknowledged. First, the generalizability of the findings is constrained by the sample size and context, as the study was limited to seventh-grade students in a single private junior high school in Bandar Lampung, Indonesia. Educational settings with different socio-cultural and institutional characteristics may produce divergent outcomes. Second, the duration of the intervention (i.e. eight weeks) may not have been sufficient to capture the long-term impact of cooperative learning models on student achievement and motivation. Longitudinal studies are needed to assess the sustainability of observed effects over extended periods. Third, while the study employed a validated achievement test and motivation scale, it relied solely on quantitative self-reported data, which may not fully capture the complexity of motivational constructs or classroom dynamics. Future research could benefit from a mixed-methods approach incorporating qualitative data such as classroom observations, interviews, or reflective journals to gain richer contextual understanding. Additionally, the dichotomization of student motivation into "high" and "low" based on median-split criteria may have oversimplified the nuanced spectrum of motivational orientations, potentially limiting the interpretation of interaction effects. Lastly, this study focused exclusively on two cooperative learning models Make a Match and Jigsaw without considering alternative models or blended pedagogical approaches that might offer different affordances for diverse learner profiles. Future comparative studies incorporating multiple instructional frameworks and learner variables such as self-regulation, peer dynamics, or technology use would provide more comprehensive evidence for tailoring cooperative learning strategies.

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AUTHOR CONTRIBUTION

H.K.P. was responsible for the research conceptualization, design, data collection, analysis, and manuscript drafting. E.R. and A.A.R. contributed to the critical review, language refinement, and final approval of the manuscript. All authors have read and agreed to the published version of the manuscript.

CONFLICT OF INTEREST

The authors declare no conflict of interest.

DECLARATION OF USE OF AI IN SCIENTIFIC WRITING

The author used several generative AI tools in the process. ChatGPT was used to help organise complex concepts, while Grammarly was employed to enhance the grammar, style, readability of the text and improve the overall clarity of the writing. Although these tools provided valuable support, the researcher wrote all the content and conclusions.

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